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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,238	04/13/2004	Jigish D. Trivedi	501188.04 (30174/US/3)	6331

7590 09/14/2006  
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EXAMINER

PHAN, THIEM D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/824,238

Applicant(s)

TRIVEDI, JIGISH D.

Examiner

Tim Phan

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 36-62 is/are pending in the application.
- 4a) Of the above claim(s) 36-39 and 54-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-43 and 47-50 is/are rejected.
- 7) ☒ Claim(s) 44-46 and 51-53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/13/04, 10.4.04.8/5/05, 1/30/06 & 6/30/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 36-39 and 54-57, drawn to a method for forming an antifuse, classified in class 29, subclass 825;
  - II. Claims 40-53, drawn to an alternative method for forming an antifuse, classified in class 29, subclass 846;
  - III. Claims 58-62, drawn to another method for forming an antifuse, classified in class 29, subclass 849.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method for forming an antifuse as recited in Group I does not require a first electrode thereof, as required by Group II. The subcombination, Invention II, has separate utility

such as forming a second electrode.

Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method for forming an antifuse as recited in Group I does not require parallel conductive members thereof, as required by Group III. The subcombination, Invention III, has separate utility such as forming parallel conductive members in the trenches.

Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as forming parallel conductive members in the trenches. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II or III, and vice versa. Therefore the restriction for examination purposes as indicated is proper.

4. A telephone call was made to Kimton N. Eng (206-903-8800) on 8/14/06 to discuss the above restriction requirement, and did result in an election being made for Group II (Claims 40-53) without traverse while Group I (claims 36-39 and 54-57) and Group III (claims 58-62) were withdrawn. Applicant is required to cancel these nonelected claims (36-39 and 54-62) or take other appropriate action.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143) later on.

An Office Action on the merits of Claims 40-53 now follows.

***Title***

5. The following title is suggested: "A Method for Forming an Antifuse".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 40-43 and 47-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Vyvoda et al (US 6,486,065).

**With regard to claim 40**, Vyvoda et al teach a process of forming nonvolatile memory device, comprising:

- forming a first electrode (Fig. 1, 14) having a first plurality of longitudinal members;
- forming a second electrode (Fig. 1, 23) having a second plurality of longitudinal members, the second plurality of longitudinal members of the second electrode arranged substantially orthogonally with respect to the first plurality of longitudinal members of the first electrode, the second electrode overlying the first electrode and having portions extending between the first plurality of longitudinal members; and
- forming a dielectric (Fig. 1, 20) interposed between at least portions of the first and second electrodes.

**With regard to claim 41**, Vyvoda et al teach that the forming of the first electrode having a plurality of longitudinal members comprises forming a plurality of longitudinal

members having at least one edge (Fig. 1, Cross between 14 & 23) on which the dielectric (Fig. 1, 20) and the longitudinal members of the second electrode (Fig. 1, 23) are formed.

**With regard to claim 42**, Vyvoda et al teach that each of the longitudinal members of the first electrode have a rectangular profile (Fig. 1, 14).

**With regard to claim 43**, Vyvoda et al teach that the forming of the first electrode having a plurality of longitudinal members comprises forming a plurality of vertically oriented rectangular plates (Fig. 1, 14).

**With regard to claim 47**, Vyvoda et al teach a process of forming nonvolatile memory device, comprising:

- forming a first electrode (Fig. 1, 14) having a first plurality of parallel conductive members;
- forming a second electrode (Fig. 1, 23) having a second plurality of parallel conductive members over the first electrode and
- intersecting (Fig. 1, 14 & 23) the first plurality of conductive members, the conductive members of the second plurality; and
- forming a dielectric (Fig. 1, 20) interposed between at least portions of the first and second electrodes.

**With regard to claim 48,** Vyvoda et al teach that the forming of the first electrode having a plurality of parallel conductive members comprises forming a plurality of conductive members having at least one edge (Fig. 1, Cross between 14 & 23) on which the dielectric (Fig. 1, 20) and the conductive members of the second electrode (Fig. 1, 23) are formed.

**With regard to claim 49,** Vyvoda et al teach that each of the conductive members of the first electrode have a rectangular profile (Fig. 1, 14).

**With regard to claim 50,** Vyvoda et al teach that the forming of the first electrode having a plurality of parallel conductive members comprises forming a plurality of vertically oriented rectangular plates (Fig. 1, 14).

***Allowable Subject Matter***

8. Claims 44-46 and 51-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M - F, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tim Phan  
Examiner  
Art Unit 3729

tp  
August 26, 2006



**A. DEXTER TUGBANG**  
**PRIMARY EXAMINER**